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FROM

EXPERIMENT STATIONS

SEASON 1955-56

KENYA

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KENYA

PROGRESS REPORT FOR THE SEASON 1955-56.

	Nyanza Province	*Coast Province*
Planting period	May to August	May and June
Picking period	December to early March	October to December
Close season	Early March and April	January to April

NYANZA PROVINCE

COTTON EXPERIMENTS.

BY

M. S. HASTIE.

INTRODUCTION.

Further improvements made at the main station, Kibos, during this season were the extension of the irrigation system, a new cattle shed, a cattle spray race and the addition of 8 more houses to the labour lines.

Negotiations are in progress at present to acquire 60 acres of land for a new cotton substation at Busia to replace the Bungoma farm.

On 1st January 1956 the district formerly known as North Nyanza was divided up into Elgon Nyanza and North Nyanza. Elgon Nyanza has its administrative headquarters at Bungoma, while that of the latter is at Kakamega. Most of the cotton area of the previous district lies in Elgon Nyanza.

Visits to the Cotton Experiment Station, Kibos, during the season were made by the Minister of Agriculture, the Director of Agriculture, the Chief Research Officer, the Assistant Director of Agriculture (Field) the Assistant Directors of Agriculture, Nyanza Province and Rift Valley Province, and Mr. A. N. Prentice, Mr. T. H. Coaker, Mr. C. Logan, Mr. H. M. Parker and Mr. B. J. S. Lee of the Empire Cotton Growing Corporation.

Mr. Hastie and Mr. Crowe visited the Coast Province cotton areas, the Mwea/Tebere irrigation scheme in Central Province, cotton plots at Kampi ya moto in Rift Valley Province and the Cotton Research Station, Namulonge, Uganda.

Rainfall.

During the past season the main rains were light and very localised in distribution. Storms occurred during the June/September period, and in October and November many areas had one of their driest periods. January to March, which are the months when the crop is picked, were very wet in many places, and in Elgon Nyanza, particularly around Malakisi, severe hailstorms occurred during February. Fortunately, most areas enjoyed hot conditions during the latter part of February and most of March. Heavy rains again fell at the end of March in all areas.

TABLE 1.
RAINFALL IN INCHES.

	Elgon Nyanza		*Central Nyanza*	*South Nyanza*	
	Itesio	*Bungoma*	*Kibos*	*Homa Bay*	
	Leprosarium	*Cotton substation*	*Main station*	*Ginnery*	*Cotton substation*
April 1955	10·13	6·23	5·85	7·20	11·94
May	7·72	7·37	6·50	6·00	5·41
June	5·45	4·60	1·73	2·85	4·89
July	2·78	4·25	4·47	6·15	4·34
August	6·28	6·47	3·72	6·16	3·12
September	4·82	6·66	3·85	6·16	6·29
October	5·62	6·45	2·68	2·15	1·51
November	4·77	3·22	2·03	6·65	3·62
December	2·92	6·55	6·88	3·95	2·16
January 1956	4·56	2·68	12·52	2·65	1·73
February	2·83	2·90	0·94	2·25	1·85
March	5·33	6·08	5·22	1·70	3·28
Total	63·21	63·46	56·39	53·87	50·14

Cotton Crop.

A comparison of the estimated 1955-56 crop with that of the previous season is given in Table 2.

TABLE 2.
COTTON PRODUCTION IN NYANZA BY GINNERIES.
1954-55 and 1955-56.

	1954-55			*1955-56*		
	Acreage	*Total 400 lb. bales*	*% BR*	*Acreage*	*Total 400 lb. bales*	*% BR*
South Nyanza	14,500			16,000		
Homa Bay		1,814	19·6		2,178	21·3
Central Nyanza	28,000			30,000		
Kibos		243	26·7		403	27·3
Ndere		1,945	9·9		2,451	14·7
Ukwamba		3,384	6·3		3,345	9·6
North Nyanza	30,000			30,000		
Nambare		2,293	5·8		2,242	8·1
Malakisi		1,075	4·7		1,020	7·4
Totals	72,500	10,754	9·4	76,000	11,939	12·9

The cotton buying season opened in South Nyanza and Kano Plain on 19th December, and in the other areas on 3rd January to conform with Uganda along the border. In South Nyanza, as a result of propaganda and pressure by the Agricultural Department, most of the cotton was planted in June or earlier. There was also a slight increase in acreage and a new record for cotton production has been achieved for the district. The Central Nyanza crop was slightly earlier planted on the whole and the acreage was increased from 28,000 to 30,000.

Both Ndere and Kibos ginneries increased their output over that of the past few years while Ukwamba did not reach the figure of the 1951-52 season. The latter ginnery has been completely redesigned to ensure faster output and less manual handling. The crop in what was North Nyanza shows a slight increase over that of last season.

The prices paid to growers were 54 cents for A grade and 20 cents for B grade. This is a drop of 6 cents and 3 cents per lb. respectively as compared with last season. Buying was expected to finish sometime in April.

Diseases.

Bacterial blight (*Xanthomonas malvacearum*) damage was the worst seen since the 1951-52 season, particularly in parts of North Nyanza and Suna and Kabondo in South Nyanza. Boll lesions and the blackarm phase were common everywhere. There is reason to believe that faulty seed dressing and weather conditions were largely responsible for the heavy infection found in most areas. For the first time, *Verticillium* wilt was recorded this season on cotton in Kenya, in a plot on the Cotton Experiment Station, Kibos. Only a very small area was affected.

Results of Experiments.

The results of district trials were not available in time for inclusion in this report, and only Kibos trials are reported here.

Date of Planting Trial.

The date of planting trial of the 1954-55 season was repeated in 1955-56 to see whether the results obtained were peculiar to that particular season, or whether early planting would give best results and should be included in the local cotton policy.

Table 3.

Kibos.

Date of planting	*Yield in lb. per acre*
March	1157·1
April	1165·6
May	438·2
June	273·7
S.E.	111·34
S.D. (P=0·05)	356·16
Design	Randomised blocks
No. of replications	4
Plot size	24′ × 40′
Variety	S47 (seed dusted with Perenox)
Spacing	3′ × 2′
Thinning	2 plants per hole
Cultivation	Tied bench ridges

The results of this experiment show that the March and April plantings were significantly better than those of May and June. The previous year, March planting was significantly better than all the other treatments and that of April better than that of June at $P = 0{\cdot}05$. From the evidence available it would appear, therefore, that by planting in March optimum yields should be expected. This experiment will be repeated in the 1956-57 season, with the difference that all plots will be sprayed against stainers.

Variety Trial.

The variety trial was laid out with the object of comparing DE715/6 and Albar Select with the two varieties S47 and Uk48, which are at present being grown in Nyanza. DE715/6 is similar in quality and habit to S47 and is being considered as a possible replacement for the latter. Albar Select was made up of selections out of Albar, which is at present being investigated for bacterial blight resistance. DE715/6 and S47 were earliest in producing their crop, while Uk48 was much later. Albar Select tended to be very leggy and grew to about 6 ft. in height. Its quality of lint, though almost as long as Uk48, tended to be harsh, but it was not so late as the latter. No variety significantly outyielded another. The results are shown in Table 4.

Table 4.

Kibos.

Variety	*Yield in lb. per acre*
S47	901·8
Uk48	743·0
Albar Select	700·5
DE715/6	676·4
Significance	N.S.
Date of planting	25.3.55
Design	4 × 4 Latin square
Plot size	12′ × 40′
Spacing	3′ × 2′
Thinning	2 plants per hole
Cultivation	Tied bench ridges

Intercropping Observation Plots.

The object of this experiment was to find an alternative system to the present one, which would ensure earlier planting of cotton without upsetting the acreage cultivated for food production. A further consideration was the possibility of reducing pest infestation. The normal practice in Nyanza has been to open land immediately before the long rains for maize and sorghum and later to cultivate a small area for cotton. At present all peasant cultivation is done by hand

and/or ploughing with a small oxen-drawn plough, which limits the amount of land each family unit can look after properly.

Two series of 4 plots each were laid out, one on the flat and the other on tied bench ridges. It was felt that with intercropping the plant demand for water would be high and, therefore, there should be some means of water conservation. This has been borne out by results as shown in Table 5.

TABLE 5.

COTTON YIELDS IN LB. SEED COTTON PER ACRE.
MAIZE YIELDS IN LB. SHELLED MAIZE PER ACRE.

	Treatments							
	I		*II*		*III*		*IV*	
	T.B.R.	*Flat*	*T.B.R.*	*Flat*	*T.B.R.*	*Flat*	*T.B.R.*	*Flat*
Cotton	222·6	194·4	268·1	214·8	395·1	351·2	—	—
Maize	1304·3	677·2	1479·9	1229·1	1806·0	426·4	1705·7	551·8

Treatment I.	Maize:	Rows 6′ apart, holes 1′ apart in row.
	Cotton:	2 rows planted between rows of maize at 2′ apart, holes 3′ apart in rows. Thinning to 2 plants per hole. Maize and cotton planted 26.3.55.
Treatment II.	Maize:	2 Rows 3′ apart separated from next 2 rows by 6′ gap. Holes 1′ apart in row.
	Cotton:	Planted in 6′ gap between maize as in treatment I. Maize and cotton planted 26.3.55.
Treatment III.	Maize:	Planted at local spacing.
	Cotton:	Planted at local spacing between the rows of maize. Maize and cotton planted on 26.3.55.
Treatment IV.	Maize:	Planted at local spacing 26.3.55.
	Cotton:	Planted at local spacing after maize was harvested. This treatment failed to produce any crop.

All the plots on tied bench ridges outyielded the corresponding plots on the flat—in the case of maize the yields on ridges were often double those on the flat. The cotton on the tied bench ridges looked much better than that on the flat and had better stands, but it is likely that a higher proportion of the potential T.B.R. cotton crop was lost to stainers. There was no evidence that intercropping altered the incidence of pests in any way from that on the cotton grown as pure stands.

ENTOMOLOGY.

BY

T. J. CROWE.

(This report is included by courtesy of the Kenya Government.)

SURVEY OF PESTS.

Pest survey continued on the lines indicated last year. The division of Nyanza Province into 3 zones (Luo-Suba, Elgon Nyanza and Samia) was again justified by events.

Luo-Suba

Dysdercus populations were generally a little lower than last year. 4,500 adults per acre was the highest figure recorded. 68% of those collected were *D. nigrofasciatus* and 31% *D. superstitiosus*. Examination of large bolls just before harvest showed that 36·7% of locules were in some degree stained by *Nematospora*. *Lygus* attack was at about the same level as last year but was more severe in the lake shore areas than in the Kano Plain. It reached a peak in mid September, the maximum leaf-grade recorded being 1·9 (maximum = 4). Bollworms (*Heliothis armigera* and *Earias* spp. in about a 3 : 1 ratio) were numerous in June and July, but with good rains later in the year it is probable that they had little effect on yield.

Elgon Nyanza.

Lygus damage was of the same order as last year. Owing, however, to widespread hail damage, accurate assessment of leaf grades was impossible at many sites. Stainers were uncommon during most of the year but there were local outbreaks late in the season, where populations of 4,000-5,000 adults per acre were recorded. 32·2% of locules were in some degree stained by *Nematospora*. Bollworms were responsible for less than 8% of bud and boll shedding.

Samia.

Here, as last year, the relative proportions of pests were similar to those in the Luo-Suba area, but populations were much lower.

In all areas pink bollworm (*Platyedra gossypiella*) was common in large bolls towards the end of the season. Over half were parasitized by *Microbracon kirkpatricki*. In areas planted to S47 an odd plant on most plots, and occasionally a complete plot, was severely damaged by jassid. Even Uk48 showed slight jassid symptoms. The usual minor pests were noted throughout the Province.

Experimental Work.

A pest assessment trial was planted at Kibos. The experimental area was divided into 16 plots, each 80 feet by 78 feet. Half of these were dusted every 5 days with 2·6% BHC the dust being applied to the ground and the "inside" of the plants taking care to keep it off growing points. It was hoped by this means to control stainers without affecting the *Lygus* population. In each plot were marked out 4 rows each 64 feet long. Each group of 4 rows was treated as a whole plot.

Each row was regarded as a sub-plot and sprayed with 0·1% DDT + 0·1% Toxaphene every five days during the periods shown in Table 6.

Table 6.

Pest Assessment Trial, Kibos.

Sub-plot Spray Period	*Whole Plot Treatment*	*Yields lb. s.c./acre*	
July 4th-18th August	Dusted	1,590	1,713
	Undusted	1,836	
August 23rd-10th October.	Dusted	2,349	1,997
	Undusted	1,641	
July 4th-10th October	Dusted	1,700	1,721
	Undusted	1,743	
Control	Dusted	1,433	1,314
	Undusted	1,200	
L.S.D. (P = 0·05)		345 lb./acre	245 lb./acre

Variety—S47. Design—Randomised blocks with split plots. Replications—8. Planting date—24th March.

Each boll was examined for insect damage as it was picked, and from information thus gained and from the yield figures it was possible to work out approximate figures for the loss of potential cash return due to the following groups of pests:

a. Losses due to pests causing shedding of buds and bolls (*Lygus, Heliothis,* etc.) ... ... 18·8%

b. Losses due to pests carrying *Nematospora* (*Dysdercus* spp., etc.) ... ... 32·4%

c. Losses due to pests destroying parts of large bolls, excluding stainers (*Platyedra,* etc.) ... ... 6·5%

These percentages all assume optimum control of the other two groups of pests. They are not, therefore, additive.

An experiment using McKinlay's "single-row" design was planted at Bungoma to estimate potential yield in the presence of optimum *Lygus* control. Low soil fertility, a crippling attack of bacterial blight and the depradations of an unidentified boll-eating mammal together brought this experiment near to failure. Yield and other data are set out in Table 7.

TABLE 7.
POTENTIAL YIELD TRIAL—BUNGOMA.

Treatment	*Yields lb. s.c./acre*
Spraying, August 2nd-September 15th	132
Spraying, September 5th-October 15th	61
Spraying, August 2nd-October 15th	149
Control	108

S.E. = 17·4 L.S.D. (P = 0·05) = 52 lb./acre

Variety—S47. Planting date—May 9th. Layout—Randomised blocks.
Replications—6. Plot size—a single row 50 feet long.
Spray—0·1% DDT+0·1% Toxaphene applied to runoff every 5 days.

No insecticide trials were attempted in Samia. Routine observations of pest incidence on the date of planting experiment were made throughout the season. Yields are set out in Table 8.

TABLE 8.
DATE OF PLANTING EXPERIMENT, SAMIA.

Planting date	*Yield lb. s.c./acre*	*% Unstained cotton*
April 13th	760	68·4
May 24th	737	79·9
July 5th	526	65·7
August 16th	351	72·7
S.E.	73·4	3·2
L.S.D. (P = 0·05)	221 lb./acre	9·6%

Plot size—24′ × 36′. Cultivation—Flat.
Layout—Randomised blocks. Replications—6.

Pest attack was light and there was no evidence that it was responsible for limiting yields. Staining due to the *Nematospora* was fairly uniform on all plots. The significant staining increase on May-planted cotton was due to *Xanthomonas*.

A number of dusting trials were planted in late March in the Luo area. They each consisted of three partly isolated plots of $\frac{1}{30}$ acre. Treatments were as follows:

A. 5 × 20 lb. cotton dust (3% BHC/10% DDT) applied at 10 days intervals, beginning in the first week of August.
B. 3 × 20 lb. cotton dust (3% BHC/10% DDT) applied at 14 day intervals, beginning in the first week of August.
C. Untreated plots.

A few were written off owing to goat or other damage. On three planted in the Kano Plain the long rains were so poor that picking began at the end of July. These plots were not, therefore, dusted. The remaining 7 trials were analysed as randomized blocks. The results are shown in Table 9.

Table 9.
District Dusting Trials—Luo area.

Treatment	*Yield lb. s.c./acre*	*% Unstained cotton*
5 × 20 lb. 3:10:0 dust	1,136	71·9
3 × 20 lb. 3:10:0 dust	908	66·7
Control	646	64·2
S.E.	70·7	2·6
L.S.D. (P = 0·05)	218 lb./acre	N.S.

At 6 sites out of 7 the increased yield covered the cost of the insecticide. Further trials, aimed at reducing both the amount of insecticide and the percentage of stained cotton, are planned for next season.

Complementary to the district dusting trials, a replicated trial was planted at Kibos. In the hope of minimizing inter-plot interference a lattice of untreated cotton 18 feet wide was planted separating the actual plots. To reduce further the proportion of dusted cotton, two of the treatments were left as controls. Dusting began in the first week of August. The results are given in Table 10. Yields are expressed in terms of cash return in shillings and cents to give due weight to the proportions of stained and unstained seed cotton.

Table 10.
Dusting Trial—Kibos.

Treatment	*Applications*	*Yield Shs./acre*
A. 3% BHC/5% DDT	3 × 20 lb.—14 day intervals	268/30
B. 3% BHC/5% DDT	5 × 20 lb.—10 day intervals	328/47
C. 3% BHC/10% DDT	3 × 20 lb.—14 day intervals	330/73
D. 3% BHC/10% DDT	5 × 20 lb.—10 day intervals	381/73
E. & F. Control		285/33

L.S.D. (P=0·05) of differences between controls and "true" treatments=44/-.
L.S.D. (P=0·05) of differences between "true" treatments=50/80.
Design—6 × 6 Latin square. Plot size—42′ × 20′.
Variety—S47. Planting date—1st April.

After dusting, a careful check was kept on *Lygus* damage and flared square numbers on untreated plots. There were slight but non-significant reductions of both. At harvest time the plots were divided into an inner and outer half of equal area and pickings from these were recorded separately. There were no significant differences of either yield or percentage staining between the halves of any plot.

At a site in South Nyanza observation plots were sprayed with coarse droplets of a Malathion/sugar, a BHC/sugar or a sodium arsenite/sugar mixture. The arsenic mixture gave good *Dysdercus* control but the others were disappointing under field conditions despite

promising laboratory tests. Further trials are now being undertaken at the Scott Agricultural Laboratories, Nairobi, in the hope of producing effective baits of low mammalian toxicity for field trial next season.

At Homa Bay a trial was planted on 5th May to compare Endrin sprays with the DDT/BHC mixture used successfully last season. Part of the experiment was destroyed by a failure of the soil conservation measures and only 5 replications of the 4 treatments survived. The results are in Table 11.

Table 11.

Endrin Experiment—Homa Bay.

Treatment	*Spray Period*	*Yields lb. s.c./acre*
6×¼ lb. Endrin/acre	August 10th-September 19th	1,318
5×¼ lb. Endrin/acre	August 10th-September 21st	1,287
5×1 lb. DDT+0·3 lb. BHC/acre	August 10th-September 21st	1,466
Control		1,020

S.E.=65·7. L.S.D. (P=0·05) = 202 lb./acre

Plot size—36′ × 36′. Variety—Uk48.

As at Kibos, the plots were separated by a lattice of unsprayed cotton 18 feet wide. *Dysdercus* control was poor on all plots. 35% of the pickings were stained, but more than a third of this was due to bacterial blight.

An attempt was made on peasant grown plots in Elgon Nyanza to get information on the most profitable time to apply insecticides and an indication of potential increases in yield. The 'single-row' method was used. Four uniform rows 50 feet long were chosen on the 15 randomly selected June-planted plots. Each group of 4 rows used was regarded as a single replicate of a randomized block, one treatment being applied to each of the rows. It did not prove possible to spray the rows, so they were treated with 10% DDT dust at weekly intervals during the periods indicated in Table 12.

Table 12.

Dusting Trials—Elgon Nyanza.

Treatment Period	*Yield lb. s.c./acre*
August 10th—September 28th	628
October 5th-November 23rd	501
August 10th-November 23rd	639
Control	461

S.E. = 37·1. L.S.D. (P=0·05) = 103 lb./acre.

Yields were much reduced at 5 sites by severe hail damage late in the season.

COAST PROVINCE

(The experiments described below were performed by Mr. W. A. Wright, Agricultural Officer (Experiments) Coast Province, and this report is compiled from information supplied by him and the Assistant Director of Agriculture, Coast Province. It is published by courtesy of the Kenya Government.)

Introduction.

The major cotton growing area in Coast Province is the coastal strip north of Mombasa, especially near Gede and Malindi. Kwale district south of Mombasa also produces a small quantity. The crop is mostly grown by Africans on plots of less than an acre, but some rather larger fields are planted by Arabs and Asians. Nearly all the cotton is grown interplanted with maize; pure stands are rare. The soil is generally light and sandy, and much of it is worn out by persistent cropping. The main variety in use is N17, which has become partly mixed with U4 strains introduced in 1937. A small area was planted this year to S47.

There is only one reliable rainy season in Coast Province and successful cotton growing depends on planting as near the beginning of the main rains as possible. This season the heaviest rain fell in May and, following a determined propaganda campaign, most of the crop was planted in this month. Towards the end of July a prolonged dry spell set in and picking was general in October and November. The rainfall figures for Gede and Malindi are given as representative of the main area.

Table 13.

1955 Rainfall in Inches.

	Gede	*Malindi*
January	Nil	0·07
February	Nil	0·05
March	0·09	2·23
April	4·39	6·07
May	13·14	21·51
June	7·04	9·94
July	3·84	3·49
August	1·31	0·18
September	Nil	0·08
October	0·59	0·32
November	0·55	1·30
December	0·14	0·10
Total	31·09	45·34

Production figures for 1955 in 400 lb. bales are 3,305 bales AR and 1,004 bales BR. The estimated acreage was 43,300.

The principal pests are jassid (*Empoasca* spp.) and cotton stainers. N17 is susceptible to jassid attack and many plots were badly hit during this season. Stainer hosts, especially the baobab tree (*Adansonia* spp.), are very common. Other pests include pink

(*Platyedra gossypiella*) spiny (*Earias* spp.) and American (*Heliothis armigera*) bollworms.

Bacterial blight is not usually serious in Coast Province. 1953 was a bad year, however, apparently due to seed being brought in from Nyanza Province, and for the last two years all seed has been dusted with Perenox. *Ramularia areola* is common but does not appear to do much damage.

Experimental Results.

The experimental programme is aimed at:

(1) finding the best available variety to supersede N17.
(2) acquiring information on cultivation, manuring and other agronomic practices.
(3) investigating the economics of intercropping.

Variety Trials.

Three variety trials were planted. The yields are tabulated in Table 14.

Table 14.
Variety Trials.

Variety	*Yields lb. s.c./acre*		
	Gede	*Kibarani*	*Matuga*
Uk48	648·5	778·9	400·0
S47	588·5	653·0	316·2
N17	603·4	621·4	283·9
S.E.	19·1	45·1	48·7
L.S.D. (P=0·05)	N.S.	142·0	N.S.

Plot size—45′ × 15′. Cultivation—Flat.
Planting dates—Gede 30.5.55, Kibarani 28.5.55, Matuga 26.5.55.
Layout—Randomised blocks. Replications—4 at Gede and Matuga, 6 at Kibarani.
Spacing—3′ × 2′. Thinning—2 plants/hole (Kibarani).
3′ × 1½′. Thinning—2 plants/hole (Gede and Matuga).

Uk48 showed the greatest resistance to jassid attack. Results from the previous year also indicate that Uk48 is a promising variety for Coast Province.

The crop was light because of the general late planting. This occurred because the seed of all three varieties was not available earlier.

Intercropping Trials.

Maize and cotton intercropping trials were planted at Kibarani and Gede. The object of these experiments was to test the relative yields per acre of (a) cotton and (b) maize grown in pure stand and

interplanted according to local custom, and to compare the planting dates of maize relative to cotton in the interplanted plots.

The treatments at Kibarani were as follows:—

A. Half plot maize pure stand, half plot cotton pure stand.
Maize planted 13/4/55, spacing 3′ × 1′, 1 plant/hole.
(13/4/55) was the presumed optimum date).
Cotton planted 6/5/55, spacing 3′ × 2′, 1 plant/hole.

B. Maize and cotton interplanted.
Maize planted 13/4/55, spacing 6′ × 3′, 1 plant/hole.
Cotton planted 6/5/55, spacing 3′ × 3′, 2 plants/hole.

C. Maize and cotton interplanted.
Maize planted 26/4/55, spacing 6′ × 3′, 1 plant/hole.
Cotton planted 6/5/55, spacing 3′ × 3′, 2 plants/hole.

D. Maize and cotton interplanted.
Maize planted 6/5/55, spacing 6′ × 3′, 1 plant/hole.
Cotton planted 6/5/55, spacing 3′ × 3′, 2 plants/hole.

The yields and cash return per treatment are set out in Table 15.

Table 15.

Maize and Cotton Intercropping Trial—Kibarani.

Treatment	*Yields per acre cropped*		*Cash return/acre*
A	639 lb. s. cotton + 1307 lb. maize		Shs. 467/-
B	1048 lb. s. cotton + 1006 lb. maize		Shs. 584/-
C	907 lb. s. cotton + 819 lb. maize		Shs. 494/-
D	1039 lb. s. cotton + 480 lb. maize		Shs. 510/-
S.E.	49·9	38·8	
L.S.D. P=0·05	160 lb./acre	124 lb./acre	

Plot size—80′ × 21′. Cultivation—Flat.
Layout—Randomised blocks. Replications—4.
Cotton A Grade –/50 cents/lb., B Grade –/23 cents/lb. Maize –/15 cents/lb.

The Gede experiment was identical, except that the planting dates differed slightly.

Table 16.

Maize and Cotton Intercropping Trial—Gede.

Treatment	*Yields per acre cropped*		*Cash return*
A	546 lb. s. cotton + 1045 lb. maize		Shs. 367/-
B	558 lb. s. cotton + 888 lb. maize		Shs. 347/-
C	551 lb. s. cotton + 549 lb. maize		Shs. 294/-
D	596 lb. s. cotton + 370 lb. maize		Shs. 284/-
S.E.	29·0	137 lb./acre	
L.S.D. (P=0·05)	N.S.	42·7	

Maize planting dates: A—12.4.55. B—12.4.55. C—25.4.55. D—3.5.55.
Cotton planting date—14.5.55.

Cotton and groundnut interplanting trials were also planted at Kibarani and Gede. The object of these experiments was to compare the planting of groundnuts and cotton in alternating rows with pure stand cotton and pure stand groundnuts, with these comparisons made with the crops grown on the flat and on 3′ ridges. The treatments were as follows:

A. Groundnuts in pure stand—flat cultivation.

B. Groundnuts in pure stand—3′ ridges.

C. Cotton in pure stand—flat cultivation.

D. Cotton in pure stand—3′ ridges.

E. Cotton 2 rows, groundnuts 4 rows—flat cultivation.

F. Cotton 2 rows, groundnuts 4 rows—3′ ridges.

Since both cotton and groundnut are regarded primarily as cash crops, the cash yields per acre are shown in Table 17.

Table 17.

Groundnut and Cotton Interplanting Trial, Kibarani.

Treatment	*Yield Shs./acre*
A	Shs. 520/-
B	Shs. 545/-
C	Shs. 503/-
D	Shs. 700/-
E	Shs. 642/-
F	Shs. 689/-
S.E.	32·7
L.S.D. (P=0·05)	98/-

Plot size—30′ × 36′. Planting date—21.4.55.
Layout—Randomised blocks. Replications—4.
Cotton variety—S47. Groundnut variety—Local spreading.
Cotton A grade -/50 cents/lb, B grade -/23 cents/lb. Groundnuts -/50 cents/lb.

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